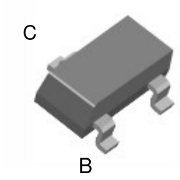
FAIRCHILD SEMICONDUCTOR®

May 2009

FSB560/FSB560A
NPN Low Saturation Transistor

Features

- These devices are designed with high current gain and low saturation voltage with collector currents up to 2A continuous.



SuperSOT™-3 (SOT-23)

Absolute Maximum Ratings* T_A=25°C unless otherwise noted

Symbol	Parameter	Ratings	Units
V_{CEO}	Collector-Emitter Voltage	60	V
V_{CBO}	Collector-Base Voltage	80	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current - Continuous	2	A
T_J, T_{STG}	Operating and Storage Junction Temperature Range	- 55 to +150	°C

* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:
1) These ratings are based on a maximum junction temperature of 150°C.
2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics T_A=25°C unless otherwise noted

Symbol	Parameter	Max.		Units
		FSB560	FSB560A	
P_D	Total Device Dissipation	500		mW
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	250		°C/W

Electrical Characteristics T_A=25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min.	Max.	Units
Off Characteristics					
BV_{CEO}	Collector-Emitter Breakdown Voltage	I_C = 10mA	60		V
BV_{CBO}	Collector-Base Breakdown Voltage	I_C = 100μA	80		V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = 100μA	5		V
I_{CBO}	Collector Cutoff Current	V_{CB} = 30V V_{CB} = 30V, T_A = 100°C		100 10	nA μA
I_{EBO}	Emitter Cutoff Current	V_{EB} = 4V		100	nA
On Characteristics*					
h_{FE}	DC Current Gain	I_C = 100mA, V_{CE} = 2V I_C = 500mA, V_{CE} = 2V FSB560 FSB560A I_C = 1A, V_{CE} = 2V I_C = 2A, V_{CE} = 2V	70 100 250 80 40	 300 550	
V_{CE}(sat)	Collector-Emitter Saturation Voltage	I_C = 1A, I_B = 100mA I_C = 2A, I_B = 200mA FSB560 FSB560A		300 350 300	mV mV mV
V_{BE}(sat)	Base-Emitter Saturation Voltage	I_C = 1A, I_B = 100mA		1.25	V
V_{BE}(on)	Base-Emitter On Voltage	I_C = 1A, V_{CE} = 2V		1	V
Small Signal Characteristics					
C_{obo}	Output Capacitance	V_{CB} = 10V, I_E = 0, f = 1MHz		30	pF
f_T	Transition Frequency	I_C = 100mA, V_{CE} = 5V, f = 100MHz	75		MHz

* Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2.0%

Typical Performance Characteristics

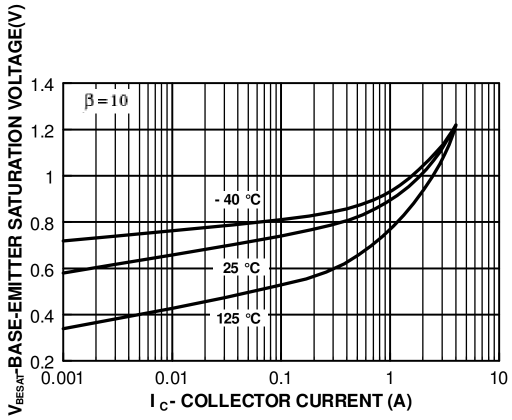


Figure 1. Base-Emitter Saturation Voltage vs Collector Current

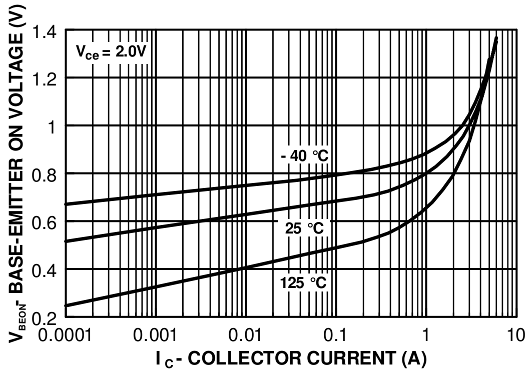


Figure 2. Base-Emitter On Voltage vs Collector Current

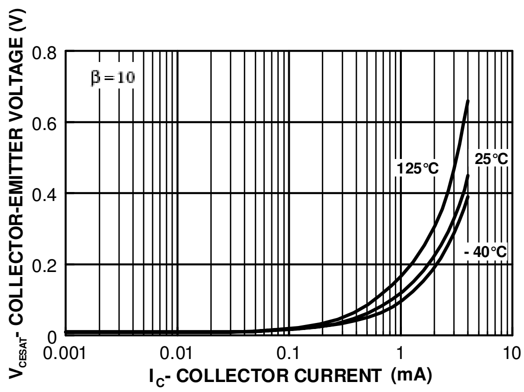


Figure 3. Collector-Emitter Saturation Voltage vs Collector Current

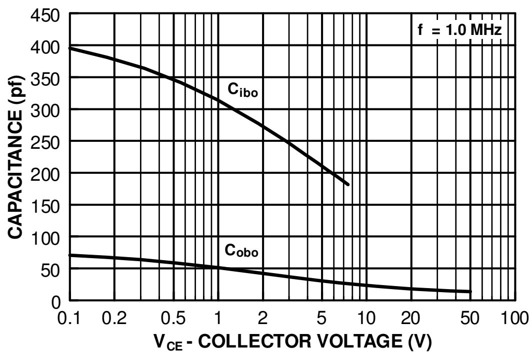


Figure 4. Input/Output Capacitance vs Reverse Bias Voltage

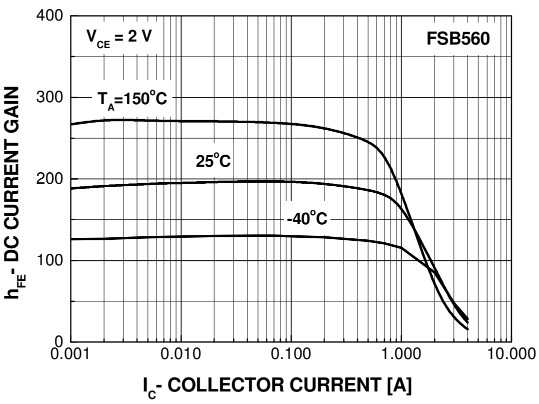


Figure 5. Current Gain vs Collector Current

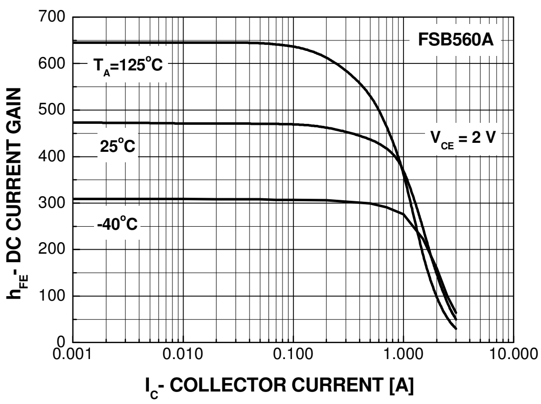
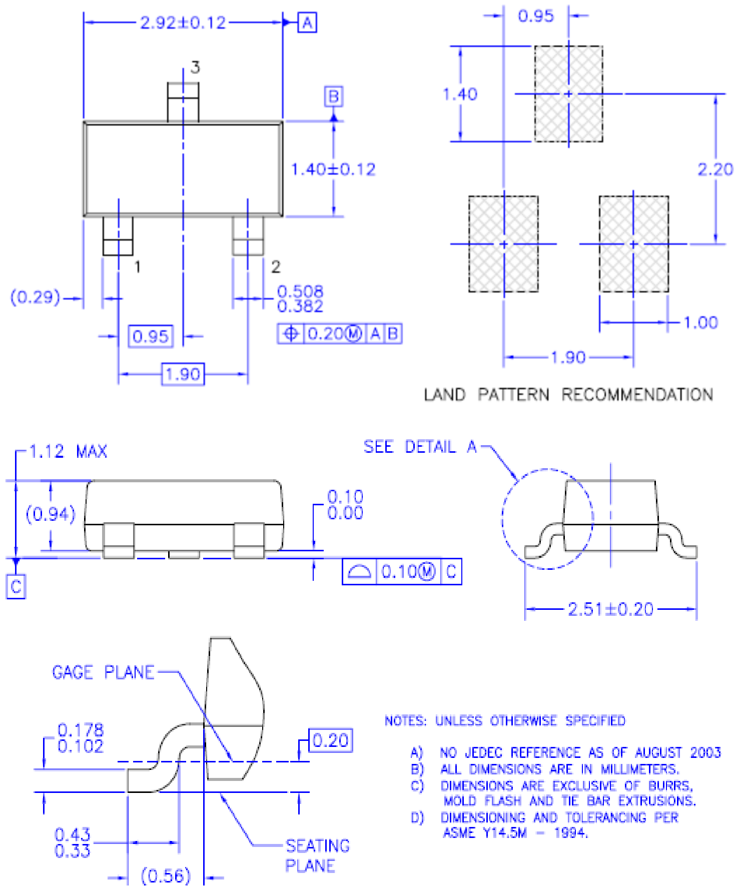


Figure 6. Current Gain vs Collector Current

Physical Dimensions

SuperSOT-23



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